(1) Simple loading instructions;
(2) A simple loading diagram with instructions;
(3) A stability booklet with sample calculations; or
(4) Any other appropriate format for providing stability instructions.
(e) Stability instructions must be developed based on the vessel's individual characteristics and may include the following, as appropriate for the format chosen for presentation:
(1) A general description of the vessel, including lightweight data;
(2) Instructions on the use of the information;
(3) General arrangement plans showing watertight compartments, closures, vents, downflooding angles, and allowable weights;
(4) Loading restrictions, such as diagrams, tables, descriptions or maximum KG curves;
(5) Sample loading conditions;
(6) General precautions for preventing unintentional flooding;
(7) Capacity plan or tank sounding tables showing tank and hold capacities, centers of gravity, and free surface effects;
(8) A rapid and simple means for evaluating any specific loading condition;
(9) The amount and location of fixed ballast;
(10) Any other necessary guidance for maintaining adequate stability under normal and emergency conditions;
(11) A general description of the stability criteria that are used in developing the instructions;
(12) Guidance on the use of roll limitation devices such as stabilizers; and
(13) Any other information the owner feels is important to the stability and operation of the vessel.

§ 28.535 Inclining test.

(a) Except as provided in paragraphs (b) and (c) of this section, each vessel for which the lightweight displacement and centers of gravity must be determined in order to do the calculations required in this subpart must have an inclining test performed.
(b) A deadweight survey may be substituted for the inclining test, if there is a record of an inclining test of a sister vessel. A vessel qualifies as a sister vessel if it is built to the same basic drawings and the undocumented weight difference between the two vessels is less than 3 percent of the lightweight displacement of the vessel which was inclined and the location of the longitudinal center of gravity differs less than 1 percent of the vessel's length.
(c) A deadweight survey may be substituted for the inclining test, or the inclining test may be dispensed with, if an accurate estimate of the vessel's lightweight characteristics can be made and the precise location of the position of the vessel's vertical center of gravity is not necessary to ensure that the vessel has adequate stability in all probable loading conditions.
(d) ASTM F 1321 (incorporated by reference, see § 28.40), with the exception of Annexes A and B, may be used as guidance for any inclining test or deadweight survey conducted under this section.

[CGD 88–079, 56 FR 40393, Aug. 14, 1991, as amended by USCG–1999–5151, 64 FR 67176, Dec. 1, 1999]

§ 28.540 Free surface.

(a) When doing the stability calculations required by this subpart, the virtual rise in the vessel's vertical center of gravity due to liquids in tanks must be considered by calculating the following—
(1) For each type of consumable liquid, the maximum free surface effect of a tank, or a transverse pair of tanks, having the greatest free surface effect, in addition to a correction for service tanks; and
(2) The free surface effect of each partially filled tank and hold containing a liquid that is not a consumable or containing fish or a fish product that can shift as the vessel heels. This should include correction for any loose water within the vessel's hull associated with the processing of fish.
(b) The free surface effect of tanks fitted with cross connection piping must be calculated assuming the tanks are one common tank, unless valves that will be kept closed to prevent the transfer of liquids as the vessel heels are installed in the piping.
(c) The moment of transference method may be used in lieu of the inertia method when calculating free surface effects.